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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,269	03/28/2005	Francis Briand	Serie 5879	7498
40582	7590	09/21/2006	EXAMINER	
AIR LIQUIDE 2700 POST OAK BOULEVARD, SUITE 1800 HOUSTON, TX 77056			EVANS, GEOFFREY S	
			ART UNIT	PAPER NUMBER

1725

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/501,269

Applicant(s)

BRIAND ET AL.

Examiner

Geoffrey S. Evans

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15, 17, 22, 24, 25 and 28-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25, 28-30, 33 and 34 is/are allowed.
- 6) ☒ Claim(s) 15, 17, 22, 24, 31, 32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the gas mixer means (recited in claim 15) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. Claims 22 and 32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 22 currently depends upon cancelled claim

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21. For the remainder of this office action, claim 22 is treated as if it depended upon claim 15.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 15, 17 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Faerber in U.S. Patent No. 6,281,472 in view of Hermann in WO 02/43,918, published 6 June 2002 and Banas et al. in U.S. Patent No. 4,000,392 and Arai in U.S. Patent No. 4,945,207. Faerber discloses laser welding with a helium-nitrogen binary gas and using a laser power as high as 3 KW (see column 3, line 450 and using nitrogen gas in the range of 10-50% with the balance being helium gas (see column 2, lines 51-66). Hermann (918) teaches that controlling and reducing plasma is mandatory at high

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laser performances (see lines 28 and 29 of page 10, that helium serves to suppress plasma (see page 4, line 12) and that Hermann teaches that the percentage of Helium required depends upon the laser power or energy density (see the last paragraph of page 2). Banas teaches increasing the laser power up to 10 kW to increase the depth of the laser weld (see figure 4). Arai teaches an apparatus for controlling the mixing of gases (see column 3, lines 5-12) used in laser material processing. It would have been obvious to adapt Faerber in view of Hermann et al., Banas et al. and Arai to provide this to increase the laser power to increase the weld depth, to increase the proportion of helium in the gas when the laser power is increased to control the amount of plasma and to provide a gas mixer (as taught by Arai) to flexibly adjust the ratio between the two gases.

6. Claims 24, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Faerber in U.S. Patent No. 6,281,472 in view of Hermann in WO 02/43,918, published 6 June 2002 and Banas et al. in U.S. Patent No. 4,000,392. Faerber discloses laser welding with a helium-nitrogen binary gas and using a laser power as high as 3 KW (see column 3, line 450 and using nitrogen gas in the range of 10-50% with the balance being helium gas (see column 2, lines 51-66). Hermann (918) teaches that controlling and reducing plasma is mandatory at high laser performances (see lines 28 and 29 of page 10, that helium serves to suppress plasma (see page 4, line 12) and that Hermann teaches that the percentage of Helium required depends upon the laser power or energy density (see the last paragraph of page 2). Banas teaches increasing the laser power up to 10 kW to increase the depth of the laser weld (see figure 4) which

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includes laser welding in the range of 4 kW to 8kW. It would have been obvious to adapt Faerber in view of Hermann et al., and Banas et al. to provide this to increase the laser power to increase the weld depth, to increase the proportion of helium in the gas when the laser power is increased to control the amount of plasma, and to experimentally determine the proper ratio of gases for a laser beam at a power level of 4 kW to 8kW. (Claim 24 is now met by a method of laser beam welding with a laser beam power level of 4 kW to 8 kW with any mixture of gases of nitrogen and helium).

7. Applicant's arguments filed 26 May 2006 have been fully considered but they are not persuasive. Arai in U.S. Patent No. 4,945,207 discloses a gas mixer (element 31, see column 3, lines 5-12). Since Applicant has enlarged the scope of claim 24, it is appropriate to make this office action final.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Claims 25,28-30,33 and 34 are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey S Evans whose telephone number is (571)-272-1174. The examiner can normally be reached on Mon-Fri 6:30AM to 4:00 PM, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (571)-272-1292. The fax phone number for the organization where this application or proceeding is assigned is (703)-872-9306.

GSE


Geoffrey S. Evans
Primary Examiner
Group 1700